

Appl No. 10/722,157
Amdt. Dated June 7, 2006
Reply to Office Action of March 8, 2006

Attorney Docket No. 81863.0024
Customer No.: 26021

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-5. (Canceled)

6. (Currently amended): A method of manufacturing piezoelectric ceramics, which comprises comprising the steps of:

~~firing disposing a green compact comprising a piezoelectric ceramic powder while contacting with the surface of on a supporting member whose surface having has porosity of 5% or less and flatness 20 µm or less; and~~

~~firing the green compact while contacting with the surface of the supporting member.~~

7. (Currently amended): The method of manufacturing piezoelectric ceramics according to claim 6, wherein the supporting member ~~have~~ has a surface flatness roughness Ra of 3 µm or less.

8. (Original) The method of manufacturing piezoelectric ceramics according to claim 6, wherein the green compact is fired while being interposed between a pair of the supporting members.

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9. (Original) The method of manufacturing piezoelectric ceramics according to claim 6, wherein the supporting member contains a crystal of at least one kind selected from the group consisting of alumina, beryllia, zirconia, magnesia, mullite, spinel structure, bismuth layer-structured compound, compound of tungsten bronze structure, compound of Pb-based perovskite structure, compound of niobium-based perovskite structure and compound of tantalum-based perovskite structure.

10. (Original) The method of manufacturing piezoelectric ceramics according to claim 6, wherein the supporting member comprises zirconia containing at least one kind selected from the group consisting of CaO, MgO, Y₂O₃ and rare earth elements.

11. (Currently amended): The method of manufacturing piezoelectric ceramics according to claim [[6]] 9, wherein the crystal constituting the supporting member has an average grain size of 5 to 30 µm.

12. (Currently amended): The method of manufacturing piezoelectric ceramics according to claim 6, wherein the green compact comprising a ~~stock material~~ piezoelectric ceramic powder of a perovskite compound containing Pb is fired while being inserted into a sealed space.

13. (Currently amended) The method of manufacturing piezoelectric ceramics according to claim 12, which satisfies the relations represented by the following expressions (1) and (2):

$$1.0001 \times (V_2 + V_3) \leq V_1 \leq 4.0000 \times (V_2 + V_3) \quad (1)$$

$$0.02 \times V_3 \leq V_2 \leq 50 \times V_3 \quad (2)$$

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where V1 denotes a volume of a sealed space, V2 denotes a volume of a supporting member and V3 denotes a volume of a green compact, when a ~~heavy object~~ supporting member having surface roughness Ra of 1 μm or less, flatness of 20 μm or less and a volume V2 is placed on a the green compact having a volume V3 and they are inserted into a the sealed space having a volume V1.

14-30. (Canceled)

31. (New) The method of manufacturing piezoelectric ceramics according to claim 6, wherein the supporting member is a sintered body.